SECTION 09 54 23

LINEAR METAL CEILINGS

**\*\* DELETE NOTE \*\* To see hidden specifier text select File->Options->Display->Show Hidden Text or press Ctrl+Shift+8 \*\* DELETE NOTE \*\***

\*\* NOTE TO SPECIFIER \*\* Rulon International; Suspended wood ceiling products.  
.  
This section is based on the products of Rulon International, which is located at:  
2000 Ring Way Rd.  
St Augustine, FL 32092  
Toll Free Tel: 800-227-8566  
Tel: 904-584-1400  
Fax: 904-584-1499  
Email:[request info (info@rulonco.com)](http://admin.arcat.com/users.pl?action=UserEmail&company=Rulon+International&coid=41073&rep=&fax=904-584-1499&message=RE:%20Spec%20Question%20(09510rul):%20%20&mf=)  
Web:[rulonco.com](http://rulonco.com)  
[[Click Here](http://www.arcat.com/arcatcos/cos41/arc41073.html)] for additional information.  
Rulon International has been manufacturing wood ceilings and acoustical wood walls for over 25 years. Rulon's state-of-the-art headquarters and manufacturing facility is located in Saint Augustine, Florida. Rulon's history of success is due to an unrelenting commitment to excellence in both product quality and customer service. Rulon is committed to giving back to the community. As Rulon experiences success as a company, we feel privileged to help those less fortunate, so they too may experience blessings. Through wise business leadership, loyal and skilled employees, Rulon continues to lead the industry in the manufacturing of suspended ceiling and acoustical wood wall systems.

1. GENERAL
   1. SECTION INCLUDES
      1. Endure Ceiling Panels
      2. Suspension Systems
   2. RELATED SECTIONS

\*\* NOTE TO SPECIFIER \*\* Delete any sections below not relevant to this project; add others as required.

* + 1. Section 07 21 16 - Blanket Insulation.
    2. Section 07 90 00 - Joint Protection.
    3. Section 08 31 13 - Access Doors and Frames.
    4. Section 09 22 26 - Suspension Systems.
    5. Section 09 23 13 - Acoustical Gypsum Plastering.
    6. Section 09 54 16 - Luminous Ceilings.
    7. Section 09 54 36 - Suspended Decorative Grids.
    8. Section 40 68 23 - Reporting Software.
    9. Section 28 31 00 - Fire Detection and Alarm.
    10. Section 21 00 00 - Fire Suppression.
    11. Section 23 37 23.16 - HVAC Gravity Louvered-Penthouse Ventilators.
    12. Section 26 51 00 - Interior Lighting.
    13. Section 27 51 16 - Public Address Systems.
  1. REFERENCES

\*\* NOTE TO SPECIFIER \*\* Delete references from the list below that are not actually required by the text of the edited section.

* + 1. ASTM E 84 - Title; 2001.
    2. U.S. Green Building Council, LEED Building Design and Construction (BD+C)Version 4.0 Rating System. (LEED v4.0)
  1. DESIGN / PERFORMANCE REQUIREMENTS
     1. Suspension System: Rigidly secure acoustic ceiling system including integral mechanical and electrical components with maximum deflection of 1:360.
     2. Linear ceilings will undergo changes with variations in the environment. Therefore, all dimensional tolerances are plus or minus 1/8 inch (3 mm).

\*\* NOTE TO SPECIFIER \*\* Include the following paragraph for suspended ceilings where seismic rated suspended ceilings are required. Delete if not required.

* + 1. Seismic: Suspended ceilings meet seismic code compliance via direct screw attachment to heavy duty grid. Local code requirements should be consulted in order to determine additional requirements.

\*\* NOTE TO SPECIFIER \*\* Include the following paragraph for suspended ceilings where fire rated suspended ceilings are required. Delete if not required.

* + 1. Fire Performance Characteristics: Suspended ceilings shall conform to Class 1, or A flame spread rating, tested according to ASTM E 84; Flame Spread: 25 or less. Smoke Developed: 450 or less.

\*\* NOTE TO SPECIFIER \*\* Include the following paragraph for suspended ceilings where FSC certified suspended ceilings are required. Delete if not required.

* 1. SUBMITTALS
     1. Submit under provisions of Section 01 30 00 - Administrative Requirements.
     2. Product Data: Manufacturer's data sheets on each product to be used, including:
        1. Preparation instructions and recommendations.
        2. Storage and handling requirements and recommendations.
        3. Installation methods.
     3. Shop Drawings: Provide layout of linear ceiling and hat channel coordinated with other trades that will penetrate the linear ceiling or interfere with the installation and recessed or surface mounted devices located within the ceiling panels. Indicate method of suspension where interference exists.

\*\* NOTE TO SPECIFIER \*\* Delete the following paragraph if LEED is not applicable.

* + 1. LEED Submittals: Provide documentation of how the requirements of Credit will be met:
       1. LEED v4.0: Suspended ceilings may contribute as required to the following LEED v4 credits: MR BPD&O - Sourcing of Raw Materials, MR BPD&O - Material Ingredients, EQ Low-Emitting Materials.

\*\* NOTE TO SPECIFIER \*\* Delete selection samples if colors have already been selected.

* + 1. Selection Samples: For each finish product specified, two complete sets of color brochures representing the manufacturer's full range of available colors and patterns.
    2. Verification Samples: For each finish product specified, two samples, minimum size 12 inches (305 mm) square, representing actual product, color, and patterns.
    3. Manufacturer's Certificates: Certify products meet or exceed specified requirements.
    4. Closeout Submittals: Provide manufacturer's maintenance instructions that include recommendations for periodic checking and adjustment and periodic cleaning and maintenance of all components.
  1. QUALITY ASSURANCE
     1. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with minimum three years documented experience.
     2. Installer Qualifications: Minimum 2 years documented experience installing projects of similar size and complexity.

\*\* NOTE TO SPECIFIER \*\* Delete below if seismic design is not required.

* + 1. Provide seismic design of suspended linear ceiling under direct supervision of Professional Engineer experienced in design of this Work and licensed at Project location.

\*\* NOTE TO SPECIFIER \*\* Include a mock-up if the project size and/or quality warrant taking such a precaution. The following is one example of how a mock-up on a large project might be specified. When deciding on the extent of the mock-up, consider all the major different types of work on the project.

* + 1. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
       1. Finish areas designated by Architect.
       2. Do not proceed with remaining work until workmanship, color, and sheen are approved by Architect.
       3. Refinish mock-up area as required to produce acceptable work.
       4. Accepted mock-ups shall be comparison standard for remaining Work
    2. Pre-Installation Conference: Convene minimum two weeks prior to starting work of this section. Agenda shall include project conditions, coordination with work of other trades, and layout of items that penetrate ceilings.
  1. DELIVERY, STORAGE, AND HANDLING
     1. Deliver material in the manufacturer's original, unopened, undamaged containers with identification labels intact.
     2. Store products off the floor in manufacturer's unopened packaging protected from exposure to harmful environmental conditions and at temperature and humidity conditions as recommended by the manufacturer.
     3. A minimum of 72 hours prior to ceiling installation, suspended linear ceilings shall be stored in the room in which they will be installed. Temperature and humidity of the room during this period shall closely approximate those conditions that will exist when the building is occupied.
     4. Handle materials to avoid damage.
  2. SEQUENCING
     1. Ensure that locating templates and other information required for installation of products of this section are furnished to affected trades in time to prevent interruption of construction progress.
     2. Ensure that products of this section are supplied to affected trades in time to prevent interruption of construction progress.
  3. PROJECT CONDITIONS
     1. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.
     2. Plenums have proper ventilation, especially in high moisture areas with no excessive buildup of heat in the ceiling areas.
     3. Space shall be fully enclosed with all exterior windows and doors in place, glazed, and weather-stripped. Roof is to be watertight, and all wet trades' work is to be completed, and thoroughly dry.
     4. Mechanical, electrical, and other utility services above the ceiling plane shall be completed. No materials should rest against, or wrap around, the ceiling suspension components or connecting hangers.
     5. Install only when the temperature and humidity closely approximate the interior conditions that will exist when the building is occupied. Heating and cooling systems shall be operating before, during, and after installation, with the humidity of the interior spaces maintained between 25 and 55 percent, and a temperature between 60 to 90 degrees F.
  4. COORDINATION
     1. Coordinate layout and installation of the linear ceiling systems with other work penetrating the ceiling including light fixtures, HVAC equipment, and fire suppression system components.
  5. EXTRA MATERIALS
     1. See Section 01 60 00 - Product Requirements.
     2. Deliver materials for Owner's use in maintenance.

\*\* NOTE TO SPECIFIER \*\* Delete options below not required; enter percentage or discrete number to be supplied.

* + - 1. Provide \_\_\_ percent of each type actually installed for use by owner in building maintenance and repair.

1. PRODUCTS
   1. MANUFACTURERS
      1. Acceptable Manufacturer: Rulon International, which is located at: 2000 Ring Way Rd.; St Augustine, FL 32092; Toll Free Tel: 800-227-8566; Tel: 904-584-1400; Fax: 904-584-1499; Email: [request info (info@rulonco.com)](mailto:request%20info%20(info@rulonco.com)); Web:[rulonco.com](http://rulonco.com)

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs; coordinate with requirements of Division 1 section on product options and substitutions.

* + 1. Substitutions: Not permitted.
    2. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.
  1. MATERIALS - GENERAL
     1. Linear ceilings will undergo changes with variations in the environment. Therefore, all dimensional tolerances are plus or minus 1/8 inch (3 mm).
  2. ENDURE CEILING PANELS
     1. Endure suspended linear systems are fabricated with strips that are nearly inert to harsh, moist weather conditions. Strips are completely recyclable.

\*\* NOTE TO SPECIFIER \*\* Select the strip pattern required from the following three paragraphs and delete the those not required.

* + - 1. 800 Series Engineered Polymer Strips:

\*\* NOTE TO SPECIFIER \*\* Select the following paragraph for optional spacers if required and delete if not required.

* + - * 1. Ceiling pans are provided with spacers between the edges of each strip, with the flat face visible.
        2. Ceiling pans are 3-1/4 inches (83 mm) wide, and placed into a design module of 4 inches (102 mm) with square sides.
      1. 810 Series Engineered Polymer Strips:

\*\* NOTE TO SPECIFIER \*\* Select the following paragraph for optional spacers if required and delete if not required.

* + - * 1. Ceiling pans are provided with spacers between the edges of each strip, with the flat face visible.
        2. Ceiling pans are 7-1/4 inches (184 mm) wide, and placed into a design module of 8 inches (203 mm) with square sides.
      1. 850 Series Engineered Polymer Strips:

\*\* NOTE TO SPECIFIER \*\* Select the following paragraph for optional spacers if required and delete if not required.

* + - * 1. Ceiling pans are provided with spacers between the edges of each strip, with the flat face visible.
        2. Ceiling pans are 3-1/4 inches (83 mm) wide, and placed into a design module of 4 inches (102 mm) with rounded sides.
      1. 900 Series Engineered Polymer Strips:
         1. Ceiling pans are provided with integral spacers between the edges of each strip, with the flat face visible.
         2. Ceiling pans are 3-1/4 inches (83 mm) wide with an integral 3/4 inch (19 mm0 spacer and placed into a design module of 4 inches (102 mm) with square sides.
      2. 910 Series Engineered Polymer Strips:
         1. Ceiling pans are provided with integral spacers between the edges of each strip, with the flat face visible.
         2. Ceiling pans are 7-1/4 inches 184 mm) wide with an integral 3/4 inch (19 mm0 spacer and placed into a design module of 8 inches (203 mm) with square sides.

\*\* NOTE TO SPECIFIER \*\* The following paragraph is optional. Delete if not required.

* + - 1. Trim and Border Treatment: Provide end caps or junction trims as indicated.
      2. Color:
         1. As selected by the Architect from the manufacturer standard selections.
  1. ACCESSORlES

\*\* NOTE TO SPECIFIER \*\* Retain applicable paragraphs regarding attachment accessories and delete the remaining..

\*\* NOTE TO SPECIFIER \*\* Coordinate with Rulon's Integrated Lighting program in partnership with GE Lighting. The program is an effort to coordinate MEPs more effectively and provide for a more streamlined process of integration. In practice, this effort begins with factory cutouts to accommodate light fixtures. Contact the manufacturer for additional information.

* + 1. Integrated Lighting System: Coordinate ceiling panels with lighting specified in Section 26 51 00 - Interior Lighting
  1. SUSPENSION SYSTEMS
     1. Suspension Rail: Standard suspension carrier shall be of Rulon manufacture, and consist of commercial grade steel with surface prepared, and painted. In swimming pool and other corrosive environments, use the Rulon suspension carrier coated with black protective coating system.
  2. FABRICATION
     1. Edges, borders, and perimeter trims shall be indicated on the Drawings in accordance with the manufacturer's standard design details. All suspended linear ceiling products specified shall be supplied by the wood slat ceiling manufacturer.

1. EXECUTION
   1. EXAMINATION
      1. Do not begin installation until substrates have been properly prepared.
      2. Verify that suspension rail specified in Section 09 22 26 - Suspension Systems are in place, suspended and leveled in a direction perpendicular to the strip direction of the linear panels.
      3. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.
   2. PREPARATION
      1. Clean surfaces thoroughly prior to installation.
      2. Work shall not begin until the space is fully enclosed and glazed and all wet work is completed and dried out to the satisfaction manufacturer.
      3. Temperature shall be at least 65 degrees Fahrenheit during the installation and thereafter.
      4. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
   3. INSTALLATION
      1. Install in accordance with manufacturer's instructions and in proper relationship with adjacent construction, including the following:

\*\* NOTE TO SPECIFIER \*\* Include the following paragraph for suspended ceilings where seismic rated suspended ceilings are required. Delete if not required.

* + - 1. Comply with ASTM C 636 and seismic design requirements indicated.
      2. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structure or of ceiling suspension system.
      3. Additional Hanger Wires: Wrapped tightly 3 full turns to structure and component at locations where imposed loads could cause deflection exceeding 1/360 span or tolerances specified below.
    1. Perimeters: Use a laser leveling device to lay out and install the perimeter trim as specified.
    2. Suspension System: Suspension rail shall be placed perpendicular to the desired linear strip direction and positioned on 3' (915mm) or 2’ (610mm) centers - as specified by the manufacturer. Carriers shall be suspended from specified hangers - starting 6" (152mm) from one wall, then on specified centers, with the last carrier positioned within 6" (152mm) of the other wall. Specified hangers shall be attached directly to structure, or to inserts, screw eyes, or other devices that are secure, and that will not deteriorate or fail with age or elevated temperatures.
    3. Linear Strips: Linear strips shall be fully attached to the carrier by snapping one side of the strip into position first, followed by the second side. When properly installed, the strips shall be firmly secured, and fully level. When spacers and acoustical blankets are specified, they shall be fitted as the installation of strips progresses. End cuts are butted tight together by snapping a connector behind the strips to create a secure, aligned joint.
    4. Make final adjustments to level or contours as required.
  1. FIELD QUALITY CONTROL
     1. Technical Service: Manufacturer shall provide a local Technical Service Representative for on-site training and assistance during the installation process.
     2. Environmental Monitoring: Manufacturer shall provide a temperature and humidity sensor to actively monitor the room in which the wood slats shall be installed for a minimum of one week before and up to two weeks after installation has been completed including all of the weeks in between.
     3. Upon completion of ceiling installation, the owner's representative shall inspect all finished surfaces to ensure that the work has been completed in a manner satisfactory to the owner. Any deficiencies in the install of the ceiling shall be corrected prior to substantial completion.
  2. ADJUSTMENTS AND CLEANING
     1. Clean exposed surfaces of ceiling panel in accordance with manufacturer's instructions.
     2. Remove and replace panels and tiles, which cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.
  3. PROTECTION
     1. Protect installed products until completion of project.
     2. Touch-up, repair or replace damaged products before Substantial Completion.
  4. SCHEDULES

\*\* NOTE TO SPECIFIER \*\* Retain Paragraph below if required to suit project requirements. Identify products by name on the Drawings or use this paragraph to define the location of each type of material to be used. The following are some examples of schedule references. Edit as required to suit project or delete and identify products on the Drawings.

* + 1. :
    2. :

END OF SECTION